



**APPLICATION PACKET  
FOR A**

**BOILER**

**(Less than or Equal to 100 MMBtu/hr)  
(With or Without Internal Combustion Engines)**

**AIR QUALITY PERMIT**

## **INTRODUCTION**

This application packet assists the applicant in determining whether or not an air quality permit is required for the operation of boiler(s) that are rated at less than or equal to 100 MMBtu/hr with or without internal combustion engines. If an air quality permit is required, this application packet assists the applicant in the submittal of the information that is required to process their application for an air quality permit. The processing time for an individual (source specific) air quality permit application may take at least five months to process.

To expedite the processing of an air quality permit application the Arizona Department of Environmental Quality (ADEQ) has created a general permit for boilers with or without internal combustion engines which significantly expedites the permitting process (processing time takes approximately one month if application is complete when submitted). Facilities which meet the criteria in the general permit and are covered under the general permit will pay lower annual air quality fees than plants covered under an individual air quality permit. If an applicant is interested in applying for coverage under the general permit this application assists the applicant in determining if their facility meets the criteria for coverage under the general permit. If it is determined that the facility meets the criteria for coverage, this application packet assists the applicant in the submittal of the information that is required to process their application for the general permit.

Applicants wishing to obtain an air quality permit shall apply to the Arizona Department of Environmental Quality (ADEQ), except for facilities which are located in Pima County. If the facility is located in Pima County, the county agency will process the air quality permit application.

If the applicant has any questions regarding jurisdictional issues, please contact ADEQ's Air Quality Permit's Section at (602) 207-2337.

## **DISCLAIMER**

This application packet does not waive the rights of the Director as provided under Arizona Administrative Code (A.A.C.) R18-2-304 to request that additional information be submitted by the applicant to assist in the processing of the application for an air quality permit. Any applicant who fails to submit any relevant facts or who has submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, an applicant shall provide additional information as necessary to address any requirements that become applicable to the source after the date it filed a complete application but prior to release of a proposed permit. Any difference in form between this application packet and Title 18, Chapter 2 of the A.A.C., the A.A.C. shall take precedence.

# APPLICATION INSTRUCTIONS

---

## 1. INSTRUCTIONS

This application packet consists of nine sections which are summarized as follows:

### Section 1: Standard Permit Application Form

A.A.C. R18-2-304 requires applicants to submit the Standard Application Form and Filing Instructions. Items 1 through 5 of this application form are fairly self-explanatory. The rest are explained below in detail:

- # Item #6 asks for the Plant/Site Manager or Contact Person. This should be the person that the Arizona Department of Environmental Quality (ADEQ) may contact for additional information.
- # Item #7 is necessary to determine the location of the plant. The township/range/section may be substituted for the latitude/longitude coordinates, in degrees, minutes and seconds.
- # Item #8, the "Equipment Purpose" should describe what is produced at the plant.
- # Under Item #9, if the "other" box is checked, please be specific as to the type of organization.
- # Item #10 asks for the Permit Application Basis which indicates what type of permit is necessary. The following steps should be utilized when filling out Item #10:
  - ! If the equipment has never been permitted before then the box titled "New Source" should be checked.
  - ! If the equipment is already permitted then the box titled "Renewal of Existing Permit" should be checked and the current permit number must be included on the line titled "For renewal or modification, include existing permit number".
  - ! If the application is for a new or renewed coverage under the general permit, then the box titled "General Permit" should be checked.
  - ! For new sources the "Date of Commencement of Construction or Modification" is the expected date that construction will begin. For existing sources this date need not be defined.
- # The "Responsible Official" referred to in Item #11 is the owner or a partner of the company in most cases. It may also be the president or vice-president of larger companies. If there is a question as to who the responsible official is, contact ADEQ for more information.

### Section 2: Permit Applicability Verification

FORM A of this application packet has been developed to determine if your facility is required to obtain an air quality permit pursuant to Arizona Administrative Code (A.A.C.) R18-2-302. For the purposes of this applicability verification, it is assumed that the only emission units at the facility are boilers with or without internal combustion engines. If the facility has any other emission units then another application may need to be filled out. In this case, please contact ADEQ's Air Quality Permits Section at (602) 207-2337 for assistance.

### Section 3: General Permit Applicability Checklist

ADEQ expects that most, but not all, facilities will qualify for coverage under the general permit. FORM B of this application packet has been developed to determine if your facility qualifies for coverage. Those

## **APPLICATION INSTRUCTIONS**

---

plants which do not qualify must obtain an individual (source specific) air quality permit. This application packet will also assist the applicant in the preparation of an application for an individual air quality permit.

# APPLICATION INSTRUCTIONS

---

## **Section 4: Emission Calculations**

FORM C of this application packet has been created to assist the applicant in determining the amount of regulated air pollutants emitted by boilers and internal combustion engines. The emissions calculated in the tables are used to assist the applicant in the completion of FORMS A and B. The emission factors in this application are based on EPA's Air Pollution Engineering Manual, AP-42.

## **Section 5: Equipment List**

FORM D of this application packet is used to provide a list of all boilers and internal combustion engines located at the facility. The list needs to include the type of equipment, make, model, maximum rated capacity, serial number, manufacture date, and equipment identification number (if available) of each piece of equipment. The complete submittal of all requested information concerning equipment will reduce processing time.

In some cases, the equipment will not have been purchased by the time of application submittal. If this is the case, the serial number will not need to be listed, but an equipment identification number will need to be provided. The equipment identification number must be clearly stenciled on each piece of equipment to be permitted before such equipment is installed.

## **Section 6: Truth, Accuracy, and Completeness**

FORM E of this application packet must be filled out and signed by the Responsible Official (this is the same person that signs the standard permit application form).

## **Section 7: Map Of Plant Location**

A map of the current plant location, depicting the plant perimeter and point of entry must be provided with the application. This may be a city map, topographical map or any map which clearly shows the location. Please mark the location of the plant on the map and include driving directions to the plant site from the nearest highway.

# APPLICATION INSTRUCTIONS

---

## Section 8: Site Diagram

A site diagram must be provided with the application. A site diagram is an aerial drawing of the plant property drawn to scale or dimensions shown. It should include:

- # Property boundaries;
- # Adjacent streets or roads;
- # Directional arrow;
- # elevation;
- # Closest distance between equipment and property boundary; and
- # location of buildings and equipment.

## Section 9: Process Description

A description of the process must be provided with the application. A process description is a brief description of the facility and what the boilers and internal combustion engines are used for.

### 3. FEES

An application fee is required to be submitted under the following conditions:

- # An Application Fee of \$540 must be submitted by applicants applying for coverage under the general permit.
- # An Application Fee of \$2000 must be submitted by applicants applying for an individual air quality permit and the applicant answered "YES" to any part of Question A.1. of FORM A.

Please make your check or money order payable to ADEQ.

### 4. FILING INSTRUCTIONS

Please mail FORMS 1 through 6 of the application packet and the Application Fee to the following address:

Arizona Department Of Environmental Quality  
Air Quality Division  
3033 North Central Avenue  
Phoenix, Arizona 85012-2809-33

## **APPLICATION INSTRUCTIONS**

---

Please remember to make photo copies of the completed application packet prior to mailing for your records.

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Air Quality Division

3033 N. Central Ave. ♦ Phoenix, AZ 85012-2809-33 ♦ Phone: (602) 207-2338

STANDARD PERMIT APPLICATION FORM

(As required by A.R.S. § 49-426, and Chapter 2, Article 3, Arizona Administrative Code)

1. Permit to be issued to: (Business license name of organization that is to receive permit) \_\_\_\_\_  
\_\_\_\_\_
2. Mailing Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP: \_\_\_\_\_
3. Previous Company Name: (if applicable) \_\_\_\_\_
4. Name (or names) of Owners/Principals: \_\_\_\_\_  
FAX #: \_\_\_\_\_ Phone: \_\_\_\_\_
5. Name of Owner's Agent: \_\_\_\_\_  
FAX #: \_\_\_\_\_ Phone: \_\_\_\_\_
6. Plant/Site Manager or Contact Person/Title: \_\_\_\_\_  
FAX #: \_\_\_\_\_ Phone: \_\_\_\_\_
7. Proposed Plant Name: \_\_\_\_\_  
Proposed Plant Location/Address: \_\_\_\_\_  
City: \_\_\_\_\_ County: \_\_\_\_\_ ZIP: \_\_\_\_\_  
Indian Reservation (if applicable): \_\_\_\_\_  
Latitude/Longitude, Elevation: \_\_\_\_\_
8. Equipment Name/Purpose: \_\_\_\_\_  
Equipment List/Description: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
9. Type of Organization:  
 Corporation                       Individual Owner  
 Partnership                       Government Entity (Government Facility Code: \_\_\_\_\_)  
 Other \_\_\_\_\_
10. Permit Application Basis (Check all that apply.):  
 New Source     Revision         Renewal of Existing Permit  
 Portable Source         General Permit  
For renewal or modification, include existing permit number (and exp. date): \_\_\_\_\_  
Date of Commencement of Construction or Modification: \_\_\_\_\_  
Is **any** of the equipment to be leased to another individual or entity?     Yes     No  
Standard Industrial Classification Code: \_\_\_\_\_ State Permit Class: \_\_\_\_\_
11. Signature of Responsible Official of Organization: \_\_\_\_\_  
Official Title of Signer: \_\_\_\_\_
12. Typed or Printed Name of Signer: \_\_\_\_\_  
Date: \_\_\_\_\_ Telephone Number: \_\_\_\_\_

# FORM A

## Permit Applicability Verification for Boilers With or Without Internal Combustion Engines

(A.A.C. R18-2-302)

The following questions have been developed to determine if your facility is required to obtain an air quality permit pursuant to A.A.C. R18-2-302. For the purposes of this applicability verification, it is assumed that the only emission units at this facility are boilers and internal combustion engines. If any other emission units exist at this facility another application may need to be filled out. In this case, please contact the Arizona Department of Environmental Quality's Air Quality Permits Section at (602) 207-2337.

### Question A.1. Applicability of New Source Performance Standards

A. Does this facility consist of any steam generating units<sup>1</sup>?

**Q** YES **Q** NO **If the Answer is YES**, proceed to Questions A.1.B.

**If the Answer is NO**, proceed to Question A.2.

B. Did any of the steam generating units identified in Question A.1.A. (above) commence, modify, or reconstruct after June 9, 1989?

**Q** YES **Q** NO **If the Answer is YES**, proceed to Questions A.1.C.

**If the Answer is NO**, proceed to Question A.2.

C. For those steam generating units identified in Question A.1.B. (above) do any of them have a maximum design heat input capacity of greater than or equal to 2.9 Mega Watts (10 million Btu/hr) but less than or equal to 29 Mega Watts (100 million Btu per hour)?

**Q** YES **Q** NO **If the Answer is YES**, you are required to obtain an air quality permit pursuant to A.A.C. R18-2-302. Proceed to Form B to determine if this facility can be covered under the general permit.

**If the Answer is NO**, proceed to Question A.2.

### Question A.2. Potential to Emit Versus Significant Quantities Verification

Does this facility emit or have the potential to emit, without controls, quantities of regulated air pollutants greater than the following amounts (To answer this question complete Tables C.1. - C.4. of Form C. If Total #1 from Table C.4. of Form C is greater than the quantities listed below then answer YES to this question.):

Carbon Monoxide (CO)	100 tons per year	PM <sub>10</sub>	15 tons per year
Nitrogen Oxides (NO <sub>x</sub> )	40 tons per year	PM	25 tons per year
Sulfur Dioxide (SO <sub>2</sub> )	40 tons per year	VOC	100 tons per year

**Q** YES **Q** NO **If the answer is YES**, you are required to obtain an air quality permit pursuant to A.A.C. R18-2-302. Proceed to Form B to determine if this facility can be covered under the general permit.

---

<sup>1</sup> A steam generating unit is defined as a device that combusts any fuel and produces steam or heats water or any other heat transfer medium. This does not include process heaters. A process heaters is defined as a device that is primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst.

# FORM A

## Permit Applicability Verification for Boilers With or Without Internal Combustion Engines (A.A.C. R18-2-302)

---

If the answer is **NO**, proceed to Question A.3.



# FORM B

## General Permit Applicability Checklist

This form has been developed to determine if your facility meets the criteria for coverage under the general permit or is required to obtain an individual permit.

- # If your facility only has one boiler complete Part I of this form.
- # If your facility has multiple boilers complete Part II of this form.

---

### PART I

#### (Facilities with One Boiler With or Without Internal Combustion Engines)

##### Question B.I.1. Which Category Does Your Boiler Belong To?

**Category A** The facility has only one boiler, it burns Natural Gas, and its maximum capacity ranges from 1 through 100 MMBtu/hr

Q YES Q NO

If the answer is YES, proceed to Question B.I.2.

If the answer is NO, then continue to next category.

**Category B** The facility has only one boiler, it burns Liquefied Petroleum Gas, and its maximum capacity ranges from 1 through 90 MMBtu/hr

Q YES Q NO

If the answer is YES, proceed to Question B.I.2.

If the answer is NO, then continue to next category.

**Category C** The facility has only one boiler, it burns Diesel, and its maximum capacity ranges from 1 through 50 MMBtu/hr

Q YES Q NO

If the answer is YES, proceed to Question B.I.2.

If the answer is NO, the facility does not qualify for coverage under the general permit and must obtain an individual permit. Please contact the Air Quality Permits Section at ADEQ for assistance.

##### Question B.I.2. Does Your Facility Have Any Internal Combustion Engines?

Q YES Q NO

If the answer is YES, proceed to Question B.I.3

If the answer is NO, then your facility qualifies for coverage under the general permit.

##### Question B.I.3. What Is the Total Horsepower of All Internal Combustion Engines at this Facility?

T<sub>HP</sub> = \_\_\_\_\_

##### Question B.I.4. Is T<sub>HP</sub> less than or Equal to 750 Horsepower (hp)?

Q YES Q NO If the answer is YES, proceed to Question B.I.5

If the answer is NO, the facility does not qualify for coverage under the general permit and

# FORM B

## General Permit Applicability Checklist

---

must obtain an individual permit. Please contact the Air Quality Permits Section at ADEQ for assistance.

# FORM B

## General Permit Applicability Checklist

---

**Question B.I.5. Will the Facility Be Able to Limit its Operating Hours for Each Internal Combustion Engine to less than or Equal to 500 Hours per Year?**

YES  NO **If the answer is YES**, your facility qualifies for coverage under the general permit.

**If the answer is NO**, the facility does not qualify for coverage under the general permit and must obtain an individual permit. Please contact the Air Quality Permits Section at ADEQ for assistance.

---

## PART II

(Facilities With Multiple Boilers With or Without Internal Combustion Engines)

**Question B.II.1. Does this Facility Operate Multiple Boilers That All Burn the Same Fuel or a Combination of Natural Gas, Liquefied Petroleum Gas, and Diesel?**

YES  NO **If the answer is YES**, complete Table C.1 of Form C, and proceed to Question B.II.2.

**If the answer is NO**, please contact the Air Quality Permits Section at ADEQ for assistance.

**Question B.II.2. Does Your Facility Operate Internal Combustion Engines?**

YES  NO **If the answer is YES**, then complete both Questions B.II.3. and B.II.4.

**If the answer is NO**, then complete only Question B.II.4.

**Question B.II.3. Will the Facility Be Able to Limit its Operating Hours for Each Internal Combustion Engine to less than or Equal to 500 Hours per Year?**

YES  NO **If the answer is YES**, complete Tables C.2. and C.3. of Form C.

**If the answer is NO**, the facility does not qualify for coverage under the general permit and must obtain an individual permit. Please contact the Air Quality Permits Section at ADEQ for assistance.

**Question B.II.4. Is the Total # 2 in Table C.4. of Form C 90 Tons per Year?**

(To answer this question complete Tables C.1. - C.4. of Form C. If Total #2 from Table C.4. of Form C is less than or equal to 90 tons per year then answer YES to this question.)

YES  NO **If the answer is YES**, proceed to Question B.II.4.

**If the answer is NO**, the facility does not qualify for coverage under the general permit and must obtain an individual permit. Please contact the Air Quality Permits Section at ADEQ for assistance.

# FORM C

## Emission Calculations For Boilers

TABLE C.1. must be completed, in order to calculate the emissions from boilers ranging from 1 MMBtu/hr to less than 10 MMBtu/hr heat input and use the below mentioned fuels. Emissions from the boilers are calculated by taking the power heat input listed in column (a) and multiplying it by the emission and conversion factors listed in columns (b-g) and (h). Please choose the row containing the appropriate emission factors for the particular fuel you use in this boiler. If a boiler burns a fuel other than the ones listed below, please contact the Air Quality Permits Section for assistance.

**Table C.1. Calculation of Emissions from Boilers With Heat Input Rates of Less Than 100 MMBtu/hr**

**Boiler Description:** Type: \_\_\_\_\_ Model: \_\_\_\_\_ Serial Number: \_\_\_\_\_  
**Stack Information:** Height above ground (feet): \_\_\_\_\_ Height above structure (feet): \_\_\_\_\_  
**Exit Data:** Diameter (feet): \_\_\_\_\_ Velocity (feet/sec): \_\_\_\_\_ Temperature (deg. F): \_\_\_\_\_

Max Heat Input Rate (MM Btu/hr)	Emission Factors (lb/MMBtu)						Conversion	Emissions (tpy)					
	PM (b)	PM-10 (c)	SO2 (d)	NOx (e)	CO (f)	VOC (g)	(hr*ton)/(yr*lb) (h)	PM (axbxh)	PM-10 (axcxh)	SO2 (axdxh)	NOx (axexh)	CO (axfxh)	VOC (axgxh)
<b>Natural Gas</b>													
	0.00724	0.00724	0.000571	0.0952	0.08	0.00524	4.38						
<b>Butane</b>													
	0.00616	0.00616		0.216	0.037	0.00411	4.38						
<b>Propane</b>													
	0.00663	0.00663		0.21	0.0354	0.00331	4.38						
<b>Diesel</b>													
	0.0146	0.00788	1.07	0.146	0.0365	0.00146	4.38						

**NOTE:** Please make copies of this page to complete if the facility has more than one boiler in this size range.

# FORM C

## Emission Calculations For Engines

TABLE C.2. must be completed, in order to calculate the emissions from internal combustion engines which have a power output that is less than or equal to 447 kW (600 hp) and use gasoline or diesel as fuel. Emissions from the internal combustion engines are calculated by taking the power output of the internal combustion engine in horsepower listed in column (a) and multiplying it by the emission and conversion factors listed in columns (b-g) and (h). Please choose the row containing the appropriate emission factors for the particular fuel you use in this engine. If an engine burns a fuel other than the ones listed below, please contact the Air Quality Permits Section for assistance.

**Table C.2. Calculation of Emissions from Internal Combustion Engines Less Than or Equal to 600 HP**

**Engine Description:** Type: \_\_\_\_\_ Model: \_\_\_\_\_ Serial Number: \_\_\_\_\_  
**Stack Information:** Height above ground (feet): \_\_\_\_\_ Height above structure (feet): \_\_\_\_\_  
**Exit Data:** Diameter (feet): \_\_\_\_\_ Velocity (feet/sec): \_\_\_\_\_ Temperature (deg. F): \_\_\_\_\_

Max Horsepower	Emission Factors (lb/hp-hr)						Conversion	Emissions (tpy)					
	PM (b)	PM-10 (c)	SO2 (d)	NOx (e)	CO (f)	VOC (g)	(hr*ton)/(yr*lb) (h)	PM (axbxh)	PM-10 (axcxh)	SO2 (axdxh)	NOx (axexh)	CO (axfxh)	VOC (axgxh)
<b>Gasoline</b>													
	0.000724	0.000724	0.000591	0.011	0.439	0.022	4.38						
<b>Diesel</b>													
	0.0022	0.0022	0.00205	0.031	0.00668	0.0025	4.38						

**NOTE:** Please make copies of this page to complete if the facility has more than one engine in this size range.

# FORM C

## Emission Calculations For Engines

TABLE C.3. must be completed, in order to calculate the emissions from internal combustion engines which have a power output that is greater than 447 kW (600 hp) and use gasoline or diesel as fuel. Emissions from the internal combustion engines are calculated by taking the power output of the internal combustion engine in horsepower listed in column (a) and multiplying it by the emission and conversion factors listed in columns (b-g) and (h). If an engine burns a fuel other than the one listed below, please contact the Air Quality Permits Section for assistance.

**Table C.3. Calculation of Emissions from Internal Combustion Engines Greater Than 600 HP**

**Boiler Description:** Type: \_\_\_\_\_ Model: \_\_\_\_\_ Serial Number: \_\_\_\_\_  
**Stack Information:** Height above ground (feet): \_\_\_\_\_ Height above structure (feet): \_\_\_\_\_  
**Exit Data:** Diameter (feet): \_\_\_\_\_ Velocity (feet/sec): \_\_\_\_\_ Temperature (deg. F): \_\_\_\_\_

Max Horsepower	Emission Factors (lb/hp-hr)						Conversion	Emissions (tpy)					
	PM (b)	PM-10 (c)	SO2 (d)	NOx (e)	CO (f)	VOC (g)	(hr*ton)/(yr*lb) (h)	PM (axbxh)	PM-10 (axcxh)	SO2 (axdxh)	NOx (axexh)	CO (axfxh)	VOC (axgxh)
<b>Diesel</b>													
	0.0007	0.000574	0.00728	0.024	0.0055	0.000624	4.38						

**NOTE:** Please make copies of this page to complete if the facility has more than one engine in this size range.

# FORM C

## Emission Calculations

---

TABLE C.4. must be completed, in order to determine the total amount of uncontrolled and controlled regulated air pollutants. TOTAL #1 is calculated by adding together all similar emissions from Tables C.1. through C.3. TOTAL #2 is calculated by adding together all similar emissions from Tables C.2. and C.3. and multiplying this total by 0.25. This total is then added to similar emissions from Table C.1. Please remember that when determining TOTAL #1 and TOTAL #2 that they must account for all copies of Tables C.1. through C.3. that were made due to multiple pieces of equipment.

**Table C.4. Total Emissions**

		EMISSIONS (tpy)					
		PM	PM-10	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
<b>TOTAL # 1</b>	<b>Uncontrolled: Table C.1. + C.2. + C.3.</b>						
<b>TOTAL # 2</b>	<b>(Table C.1.) + (Table C.2. +C.3.) X (0.25)</b>						



# FORM E

## Certification of Truth, Accuracy, and Completeness

---

1. This certification must be signed by the Responsible Official. Applications without a signed certification will be deemed incomplete.
2. I certify that I have knowledge of the facts herein set forth and in this application that the same are true, accurate, and complete to the best of my knowledge and belief and that all information not identified by me as confidential in nature shall be treated by the Arizona Department of Environmental Quality as public record.

Typed or Printed Company Name: \_\_\_\_\_

Official Title of Signer: \_\_\_\_\_

Typed or Printed Name of Signer: \_\_\_\_\_

Signature of Responsible Official: \_\_\_\_\_ Date: \_\_\_\_\_